

SEQUENCE LISTING

<110> Darst, Seth
 Campbell, Elizabeth
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 Goldfarb, Alex

<120> CRYSTAL OF BACTERIA CORE RNA POLYMERASE WITH RIFAMPICIN

<130> 2555-1-001

<140> UNASSIGNED

<141> 2001-03-09

<160> 4

<170> PatentIn version 3.0

<210> 1
 <211> 1525
 <212> PRT
 <213> Thermus aquaticus

<220>
 <221> X
 <222> (1247)..(1247)
 <223> Any amino acid can be placed at this position.

<400> 1

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| Met | Lys | Lys | Glu | Val | Arg | Lys | Val | Arg | Ile | Ala | Leu | Ala | Ser | Pro | Glu | 1 | 5 | 10 | 15 |
| Lys | Ile | Arg | Ser | Trp | Ser | Tyr | Gly | Glu | Val | Glu | Lys | Pro | Glu | Thr | Ile | 20 | 25 | 30 | |
| Asn | Tyr | Arg | Thr | Leu | Lys | Pro | Glu | Arg | Asp | Gly | Leu | Phe | Asp | Glu | Arg | 35 | 40 | 45 | |
| Ile | Phe | Gly | Pro | Ile | Lys | Asp | Tyr | Glu | Cys | Ala | Cys | Gly | Lys | Tyr | Lys | 50 | 55 | 60 | |
| Arg | Gln | Arg | Phe | Glu | Gly | Lys | Val | Cys | Glu | Arg | Cys | Gly | Val | Glu | Val | 65 | 70 | 75 | 80 |
| Thr | Arg | Ser | Ile | Val | Arg | Arg | Tyr | Arg | Met | Gly | His | Ile | Glu | Leu | Ala | 85 | 90 | 95 | |
| Thr | Pro | Ala | Ala | His | Ile | Trp | Phe | Val | Lys | Asp | Val | Pro | Ser | Lys | Ile | 100 | 105 | 110 | |
| Gly | Thr | Leu | Leu | Asp | Leu | Phe | Ala | Thr | Glu | Leu | Glu | Gln | Val | Leu | Tyr | 115 | 120 | 125 | |
| Phe | Asn | Lys | Tyr | Ile | Val | Leu | Asp | Pro | Lys | Gly | Ala | Val | Leu | Asp | Gly | 130 | 135 | 140 | |
| Val | Pro | Val | Glu | Lys | Arg | Gln | Leu | Leu | Thr | Asp | Glu | Glu | Tyr | Arg | Glu | 145 | 150 | 155 | 160 |
| Leu | Arg | Tyr | Gly | Lys | Gln | Glu | Thr | Tyr | Pro | Leu | Pro | Ala | Gly | Val | Asp | 165 | 170 | 175 | |
| Ala | Leu | Val | Lys | Asp | Gly | Glu | Glu | Val | Val | Lys | Gly | Gln | Glu | Leu | Ala | 180 | 185 | 190 | |
| Pro | Gly | Val | Val | Ser | Arg | Met | Asp | Gly | Val | Gly | Ser | Leu | Pro | Leu | Pro | | | | |

| 195 | | | | | 200 | | | | | 205 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Arg | Val | Arg | Val | Asp | Tyr | Leu | Arg | Lys | Glu | Arg | Ala | Ala | Leu | Arg |
| 210 | | | | | 215 | | | | | 220 | | | | | |
| Ile | Pro | Leu | Ser | Ala | Trp | Val | Glu | Lys | Glu | Pro | Tyr | Arg | Pro | Gly | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Leu | Ala | Glu | Leu | Ser | Glu | Pro | Tyr | Leu | Phe | Arg | Ala | Glu | Glu | Ser |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Gly | Val | Val | Glu | Leu | Lys | Asp | Leu | Ala | Glu | Gly | His | Leu | Ile | Tyr | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Arg | Gln | Glu | Glu | Glu | Val | Val | Ala | Arg | Tyr | Phe | Leu | Pro | Ala | Gly | Met |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Thr | Pro | Leu | Val | Val | Glu | Gly | Glu | Ile | Val | Glu | Val | Gly | Gln | Pro | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ala | Glu | Gly | Lys | Gly | Leu | Leu | Arg | Leu | Pro | Arg | His | Met | Thr | Ala | Lys |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Glu | Val | Glu | Ala | Glu | Glu | Glu | Gly | Asp | Ser | Val | His | Leu | Thr | Leu | Phe |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Leu | Glu | Trp | Thr | Glu | Pro | Lys | Asp | Tyr | Lys | Val | Ala | Pro | His | Met | Asn |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Val | Ile | Val | Pro | Glu | Gly | Ala | Lys | Val | Gln | Ala | Gly | Glu | Lys | Ile | Val |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Ala | Ala | Ile | Asp | Pro | Glu | Glu | Glu | Val | Ile | Ala | Gln | Ala | Glu | Gly | Val |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Val | His | Leu | His | Glu | Pro | Ala | Ser | Ile | Leu | Val | Val | Lys | Ala | Arg | Val |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Tyr | Pro | Phe | Glu | Asp | Asp | Val | Glu | Val | Thr | Thr | Gly | Asp | Arg | Val | Ala |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Pro | Gly | Asp | Val | Leu | Ala | Asp | Gly | Gly | Lys | Val | Lys | Ser | Glu | Ile | Tyr |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Gly | Arg | Val | Glu | Val | Asp | Leu | Val | Arg | Asn | Val | Val | Arg | Val | Val | Glu |
| | 435 | | | | | 440 | | | | | | 445 | | | |
| Ser | Tyr | Asp | Ile | Asp | Ala | Arg | Met | Gly | Ala | Glu | Ala | Ile | Gln | Glu | Leu |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Leu | Lys | Glu | Leu | Asp | Leu | Glu | Lys | Leu | Glu | Arg | Glu | Leu | Leu | Glu | Glu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Met | Lys | His | Pro | Ser | Arg | Ala | Arg | Arg | Ala | Lys | Ala | Arg | Lys | Arg | Leu |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Glu | Val | Val | Arg | Ala | Phe | Leu | Asp | Ser | Gly | Asn | Arg | Pro | Glu | Trp | Met |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ile | Leu | Glu | Ala | Val | Pro | Val | Leu | Pro | Pro | Asp | Leu | Arg | Pro | Met | Val |
| | 515 | | | | | | 520 | | | | | 525 | | | |
| Gln | Val | Asp | Gly | Gly | Arg | Phe | Ala | Thr | Ser | Asp | Leu | Asn | Asp | Leu | Tyr |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Arg | Arg | Leu | Ile | Asn | Arg | Asn | Asn | Arg | Leu | Lys | Lys | Leu | Leu | Ala | Gln |
| 545 | | | | 550 | | | | | | 555 | | | | | 560 |
| Gly | Ala | Pro | Glu | Ile | Ile | Ile | Arg | Asn | Glu | Lys | Arg | Met | Leu | Gln | Glu |

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| 565 | | | | | | | | | | 570 | | | | | 575 | | | |
| Ala | Val | Asp | Ala | Val | Ile | Asp | Asn | Gly | Arg | Arg | Gly | Ser | Pro | Val | Thr | | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | | |
| Asn | Pro | Gly | Ser | Glu | Arg | Pro | Leu | Arg | Ser | Leu | Thr | Asp | Ile | Leu | Ser | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | |
| Gly | Lys | Gln | Gly | Arg | Phe | Arg | Gln | Asn | Leu | Leu | Gly | Lys | Arg | Val | Asp | | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | | |
| Tyr | Ser | Gly | Arg | Ser | Val | Ile | Val | Val | Gly | Pro | Gln | Leu | Lys | Leu | His | | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | | |
| Gln | Cys | Gly | Leu | Pro | Lys | Arg | Met | Ala | Leu | Glu | Leu | Phe | Lys | Pro | Phe | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | |
| Leu | Leu | Lys | Lys | Met | Glu | Glu | Lys | Ala | Phe | Ala | Pro | Asn | Val | Lys | Ala | | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | | |
| Ala | Arg | Arg | Met | Leu | Glu | Arg | Gln | Arg | Asp | Ile | Lys | Asp | Glu | Val | Trp | | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | | |
| Asp | Ala | Leu | Glu | Glu | Val | Ile | His | Gly | Lys | Val | Val | Leu | Leu | Asn | Arg | | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | | |
| Ala | Pro | Thr | Leu | His | Arg | Leu | Gly | Ile | Gln | Ala | Phe | Gln | Pro | Val | Leu | | | |
| 705 | | | | | 710 | | | | 715 | | | | | | 720 | | | |
| Val | Glu | Gly | Gln | Ser | Ile | Gln | Leu | His | Pro | Leu | Val | Cys | Glu | Ala | Phe | | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | | |
| Asn | Ala | Asp | Phe | Asp | Gly | Asp | Gln | Met | Ala | Val | His | Val | Pro | Leu | Ser | | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | | |
| Ser | Phe | Ala | Gln | Ala | Glu | Ala | Arg | Ile | Gln | Met | Leu | Ser | Ala | His | Asn | | | |
| | 755 | | | | | | 760 | | | | | 765 | | | | | | |
| Leu | Leu | Ser | Pro | Ala | Ser | Gly | Glu | Pro | Leu | Ala | Lys | Pro | Ser | Arg | Asp | | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | | |
| Ile | Ile | Leu | Gly | Leu | Tyr | Tyr | Ile | Thr | Gln | Val | Arg | Lys | Glu | Lys | Lys | | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | | |
| Gly | Ala | Gly | Met | Ala | Phe | Ala | Thr | Pro | Glu | Glu | Ala | Leu | Ala | Ala | Tyr | | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | | |
| Glu | Arg | Gly | Glu | Val | Ala | Leu | Asn | Ala | Pro | Ile | Val | Val | Ala | Gly | Arg | | | |
| | | | 820 | | | | | 825 | | | | | 830 | | | | | |
| Glu | Thr | Ser | Val | Gly | Arg | Leu | Lys | Phe | Val | Phe | Ala | Asn | Pro | Asp | Glu | | | |
| | | 835 | | | | | 840 | | | | | 845 | | | | | | |
| Ala | Leu | Leu | Ala | Val | Ala | His | Gly | Leu | Leu | Asp | Leu | Gln | Asp | Val | Val | | | |
| | | | | | | 855 | | | | | 860 | | | | | | | |
| Thr | Val | Arg | Tyr | Leu | Gly | Arg | Arg | Leu | Glu | Thr | Asn | Pro | Gly | Arg | Ile | | | |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 | | | |
| Leu | Phe | Ala | Arg | Ile | Val | Gly | Glu | Ala | Val | Gly | Asp | Glu | Lys | Val | Ala | | | |
| | | | | 885 | | | | | 890 | | | | | 895 | | | | |
| Gln | Glu | Leu | Ile | Gln | Met | Asp | Val | Pro | Gln | Glu | Lys | Asn | Ser | Leu | Lys | | | |
| | | | 900 | | | | | 905 | | | | | 910 | | </ | | | |

| 930 | 935 | 940 |
|---------------------------------|---------------------------------|------------------------------------|
| Ser Gly Ile Ile Thr 945 | Ile Gly Ile Asp Asp 950 | Ala Val Ile Pro Glu Glu 955 960 |
| Lys Gln Arg Tyr Leu 965 | Glu Glu Ala Asp Arg 970 | Lys Leu Arg Gln Ile Glu 975 |
| Gln Ala Tyr Glu Met Gly 980 | Phe Leu Thr Asp Arg 985 | Glu Arg Tyr Asp Gln 990 |
| Val Ile Gln Leu Trp Thr 995 | Glu Thr Thr Glu Lys Val 1000 | Thr Gln Ala Val 1005 |
| Phe Asn Asn Phe Glu Glu 1010 | Asn Tyr Pro Phe Asn 1015 | Pro Leu Tyr Val 1020 |
| Met Ala Gln Ser Gly Ala 1025 | Arg Gly Asn Pro Gln 1030 | Gln Ile Arg Gln 1035 |
| Leu Cys Gly Met Arg Gly 1040 | Leu Met Gln Lys Pro 1045 | Ser Gly Glu Thr 1050 |
| Phe Glu Val Pro Val Arg 1055 | Ser Ser Phe Arg Glu 1060 | Gly Leu Thr Val 1065 |
| Leu Glu Tyr Phe Ile Ser 1070 | Ser His Gly Ala Arg 1075 | Lys Gly Gly Ala 1080 |
| Asp Thr Ala Leu Arg Thr 1085 | Ala Asp Ser Gly Tyr 1090 | Leu Thr Arg Lys 1095 |
| Leu Val Asp Val Ala His 1100 | Glu Ile Val Val Arg 1105 | Glu Ala Asp Cys 1110 |
| Gly Thr Thr Lys Tyr Ile 1115 | Ser Val Pro Leu Phe 1120 | Gln Met Asp Glu 1125 |
| Val Thr Arg Thr Leu Arg 1130 | Leu Arg Lys Arg Ser 1135 | Asp Ile Glu Ser 1140 |
| Gly Leu Tyr Gly Arg Val 1145 | Leu Ala Arg Glu Val 1150 | Glu Ala Leu Gly 1155 |
| Arg Arg Leu Glu Glu Gly 1160 | Arg Tyr Leu Ser Leu 1165 | Glu Asp Val His 1170 |
| Phe Leu Ile Lys Ala Ala 1175 | Glu Ala Gly Glu Val 1180 | Arg Glu Val Pro 1185 |
| Val Arg Ser Pro Leu Thr 1190 | Cys Gln Thr Arg Tyr 1195 | Gly Val Cys Gln 1200 |
| Lys Cys Tyr Gly Tyr Asp 1205 | Leu Ser Met Ala Arg 1210 | Pro Val Ser Ile 1215 |
| Gly Glu Ala Val Gly Val 1220 | Val Ala Ala Glu Ser 1225 | Ile Gly Glu Pro 1230 |
| Gly Thr Gln Leu Thr Met 1235 | Arg Thr Phe His Thr 1240 | Gly Gly Xaa Ala 1245 |
| Val Gly Thr Asp Ile Thr 1250 | Gln Gly Leu Pro Arg 1255 | Val Ile Glu Leu 1260 |
| Phe Glu Ala Arg Arg Pro 1265 | Lys Ala Lys Ala Val 1270 | Ile Ser Glu Ile 1275 |
| Asp Gly Val Val Arg Ile 1280 | Glu Glu Glu Asp Arg 1285 | Leu Ser Val 1290 |

| 1280 | 1285 | 1290 |
|---------------------------------|-----------------------------|-------------------------|
| Phe Val Glu Ser Glu Gly 1295 | Phe Ser Lys Glu Tyr 1300 | Lys Leu Pro Lys 1305 |
| Asp Ala Arg Leu Leu Val 1310 | Lys Asp Gly Asp Tyr 1315 | Val Glu Ala Gly 1320 |
| Gln Pro Leu Thr Arg Gly 1325 | Ala Ile Asp Pro His 1330 | Gln Leu Leu Glu 1335 |
| Ala Lys Gly Pro Glu Ala 1340 | Val Glu Arg Tyr Leu 1345 | Val Asp Glu Ile 1350 |
| Gln Lys Val Tyr Arg Ala 1355 | Gln Gly Val Lys Leu 1360 | His Asp Lys His 1365 |
| Ile Glu Ile Val Val Arg 1370 | Gln Met Leu Lys Tyr 1375 | Val Glu Val Thr 1380 |
| Asp Pro Gly Asp Ser Pro 1385 | Leu Leu Glu Gly Gln 1390 | Val Leu Glu Lys 1395 |
| Trp Asp Val Glu Ala Leu 1400 | Asn Glu Arg Leu Ile 1405 | Ala Glu Gly Lys 1410 |
| Val Pro Val Ala Trp Lys 1415 | Pro Leu Leu Met Gly 1420 | Val Thr Lys Ser 1425 |
| Ala Leu Ser Thr Lys Ser 1430 | Trp Leu Ser Ala Ala 1435 | Ser Phe Gln Asn 1440 |
| Thr Thr His Val Leu Thr 1445 | Glu Ala Ala Ile Ala 1450 | Gly Lys Lys Asp 1455 |
| Glu Leu Ile Gly Leu Lys 1460 | Glu Asn Val Ile Leu 1465 | Gly Arg Leu Ile 1470 |
| Pro Ala Gly Thr Gly Ser 1475 | Asp Phe Val Arg Phe 1480 | Thr Gln Val Val 1485 |
| Asp Gln Arg Thr Leu Lys 1490 | Ala Ile Glu Glu Ala 1495 | Arg Lys Glu Ala 1500 |
| Val Glu Ala Lys Glu Lys 1505 | Glu Ala Pro Arg Arg 1510 | Pro Val Arg Arg 1515 |
| Glu Gln Pro Gly Lys Gly 1520 | Leu 1525 | |

<210> 2

<211> 1119

<212> PRT

<213> Thermus aquaticus

<220>

<221> X

<222> (695)..(696)

<223> Any amino acid can be at either position.

<400> 2

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Ile | Lys | Arg | Phe | Gly | Arg | Ile | Arg | Glu | Val | Ile | Pro | Leu | Pro |
| 1 | | | | 5 | | | | | | 10 | | | | 15 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Leu | Thr | Glu | Ile | Gln | Val | Glu | Ser | Tyr | Lys | Lys | Ala | Leu | Gln | Ala |
| | | | 20 | | | | | 25 | | | | | | 30 | |

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Asp Val Pro Pro Glu Lys Arg Glu Asn Val Gly Ile Gln Ala Ala Phe
   35          40          45
Lys Glu Thr Phe Pro Ile Glu Glu Gly Asp Lys Gly Lys Gly Gly Leu
   50          55          60
Val Leu Asp Phe Leu Glu Tyr Arg Ile Gly Asp Pro Pro Phe Ser Gln
   65          70          75          80
Asp Glu Cys Arg Glu Lys Asp Leu Thr Tyr Gln Ala Pro Leu Tyr Ala
   85          90          95
Arg Leu Gln Leu Ile His Lys Asp Thr Gly Leu Ile Lys Glu Asp Glu
  100          105          110
Val Phe Leu Gly His Leu Pro Leu Met Thr Glu Asp Gly Ser Phe Ile
  115          120          125
Ile Asn Gly Ala Asp Arg Val Ile Val Ser Gln Ile His Arg Ser Pro
  130          135          140
Gly Val Tyr Phe Thr Pro Asp Pro Ala Arg Pro Gly Arg Tyr Ile Ala
  145          150          155          160
Ser Ile Ile Pro Leu Pro Lys Arg Gly Pro Trp Ile Asp Leu Glu Val
  165          170          175
Glu Ala Ser Gly Val Val Thr Met Lys Val Asn Lys Arg Lys Phe Pro
  180          185          190
Leu Val Leu Leu Leu Arg Val Leu Gly Tyr Asp Gln Glu Thr Leu Val
  195          200          205
Arg Glu Leu Ser Ala Tyr Gly Asp Leu Val Gln Gly Leu Leu Asp Glu
  210          215          220
Ala Val Leu Ala Met Arg Pro Glu Glu Ala Met Val Arg Leu Phe Thr
  225          230          235          240
Leu Leu Arg Pro Gly Asp Pro Pro Lys Lys Asp Lys Ala Leu Ala Tyr
  245          250          255
Leu Phe Gly Leu Leu Ala Asp Pro Lys Arg Tyr Asp Leu Gly Glu Ala
  260          265          270
Gly Arg Tyr Lys Ala Glu Glu Lys Leu Gly Val Gly Leu Ser Gly Arg
  275          280          285
Thr Leu Val Arg Phe Glu Asp Gly Glu Phe Lys Asp Glu Val Phe Leu
  290          295          300
Pro Thr Leu Arg Tyr Leu Phe Ala Leu Thr Ala Gly Val Pro Gly His
  305          310          315          320
Glu Val Asp Asp Ile Asp His Leu Gly Asn Arg Arg Ile Arg Thr Val
  325          330          335
Gly Glu Leu Met Ala Asp Gln Phe Arg Val Gly Leu Ala Arg Leu Ala
  340          345          350
Arg Gly Val Arg Glu Arg Met Val Met Gly Ser Pro Asp Thr Leu Thr
  355          360          365
Pro Ala Lys Leu Val Asn Ser Arg Pro Leu Glu Ala Ala Leu Arg Glu
  370          375          380
Phe Phe Ser Arg Ser Gln Leu Ser Gln Phe Lys Asp Glu Thr Asn Pro
  385          390          395          400

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Leu Ser Ser Leu Arg His Lys Arg Arg Ile Ser Ala Leu Gly Pro Gly
      405      410      415
Gly Leu Thr Arg Glu Arg Ala Gly Phe Asp Val Arg Asp Val His Arg
      420      425      430
Thr His Tyr Gly Arg Ile Cys Pro Val Glu Thr Pro Glu Gly Ala Asn
      435      440      445
Ile Gly Leu Ile Thr Ser Leu Ala Ala Tyr Ala Arg Val Asp Ala Leu
      450      455      460
Gly Phe Ile Arg Thr Pro Tyr Arg Arg Val Lys Asn Gly Val Val Thr
      465      470      475      480
Glu Glu Val Val Tyr Met Thr Ala Ser Glu Glu Asp Arg Tyr Thr Ile
      485      490      495
Ala Gln Ala Asn Thr Pro Leu Glu Gly Asp Arg Ile Ala Thr Asp Arg
      500      505      510
Val Val Ala Arg Arg Arg Gly Glu Pro Val Ile Val Ala Pro Glu Glu
      515      520      525
Val Glu Phe Met Asp Val Ser Pro Lys Gln Val Phe Ser Leu Asn Thr
      530      535      540
Asn Leu Ile Pro Phe Leu Glu His Asp Asp Ala Asn Arg Ala Leu Met
      545      550      555      560
Gly Ser Asn Met Gln Thr Gln Ala Val Pro Leu Ile Arg Ala Gln Ala
      565      570      575
Pro Val Val Met Thr Gly Leu Glu Glu Arg Val Val Arg Asp Ser Leu
      580      585      590
Ala Ala Leu Tyr Ala Glu Glu Asp Gly Glu Val Val Lys Val Asp Gly
      595      600      605
Thr Arg Ile Ala Val Arg Tyr Glu Asp Gly Arg Leu Val Glu His Pro
      610      615      620
Leu Arg Arg Tyr Ala Arg Ser Asn Gln Gly Thr Ala Phe Asp Gln Arg
      625      630      635      640
Pro Arg Val Arg Val Gly Gln Arg Val Lys Lys Gly Asp Leu Leu Ala
      645      650      655
Asp Gly Pro Ala Ser Glu Glu Gly Phe Leu Ala Leu Gly Gln Asn Val
      660      665      670
Leu Val Ala Ile Met Pro Phe Asp Gly Tyr Asn Phe Glu Asp Ala Ile
      675      680      685
Val Ile Ser Glu Glu Leu Xaa Xaa Arg Asp Phe Tyr Thr Ser Ile His
      690      695      700
Ile Glu Arg Tyr Glu Ile Glu Ala Arg Asp Thr Lys Leu Gly Pro Glu
      705      710      715      720
Arg Ile Thr Arg Asp Ile Pro His Leu Ser Glu Ala Ala Leu Arg Asp
      725      730      735
Leu Asp Glu Glu Gly Ile Val Arg Ile Gly Ala Glu Val Lys Pro Gly
      740      745      750
Asp Ile Leu Val Gly Arg Thr Ser Phe Lys Gly Glu Gln Glu Pro Ser
      755      760      765

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Pro Glu Glu Arg Leu Leu Arg Ser Ile Phe Gly Glu Lys Ala Arg Asp
 770 775 780
 Val Lys Asp Thr Ser Leu Arg Val Pro Pro Gly Glu Gly Gly Ile Val
 785 790 795 800
 Val Gly Arg Leu Arg Leu Arg Arg Gly Asp Pro Gly Val Glu Leu Lys
 805 810 815
 Pro Gly Val Arg Glu Val Val Arg Val Phe Val Ala Gln Lys Arg Lys
 820 825 830
 Leu Gln Val Gly Asp Lys Leu Ala Asn Arg His Gly Asn Lys Gly Val
 835 840 845
 Val Ala Lys Ile Leu Pro Val Glu Asp Met Pro His Leu Pro Asp Gly
 850 855 860
 Thr Pro Val Asp Val Ile Leu Asn Pro Leu Gly Val Pro Ser Arg Met
 865 870 875 880
 Asn Leu Gly Gln Ile Leu Glu Thr His Leu Gly Leu Ala Gly Tyr Phe
 885 890 895
 Leu Gly Gln Arg Tyr Ile Ser Pro Val Phe Asp Gly Ala Thr Glu Pro
 900 905 910
 Glu Ile Lys Glu Leu Leu Ala Glu Ala Phe Asn Leu Tyr Phe Gly Lys
 915 920 925
 Arg Gln Gly Glu Gly Phe Gly Val Asp Lys Arg Glu Lys Glu Val Leu
 930 935 940
 Ala Arg Ala Glu Lys Leu Gly Leu Val Ser Pro Gly Lys Ser Pro Glu
 945 950 955 960
 Glu Gln Leu Lys Glu Leu Phe Asp Leu Gly Lys Val Val Leu Tyr Asp
 965 970 975
 Gly Arg Thr Gly Glu Pro Phe Glu Gly Pro Ile Val Val Gly Gln Met
 980 985 990
 Phe Ile Met Lys Leu Tyr His Met Val Glu Asp Lys Met His Ala Arg
 995 1000 1005
 Ser Thr Gly Pro Tyr Ser Leu Ile Thr Gln Gln Pro Leu Gly Gly
 1010 1015 1020
 Lys Ala Gln Phe Gly Gly Gln Arg Phe Gly Glu Met Glu Val Trp
 1025 1030 1035
 Ala Leu Glu Ala Tyr Gly Ala Ala His Thr Leu Gln Glu Met Leu
 1040 1045 1050
 Thr Ile Lys Ser Asp Asp Ile Glu Gly Arg Asn Ala Ala Tyr Gln
 1055 1060 1065
 Ala Ile Ile Lys Gly Glu Asp Val Pro Glu Pro Ser Val Pro Glu
 1070 1075 1080
 Ser Phe Arg Val Leu Val Lys Glu Leu Gln Ala Leu Ala Leu Asp
 1085 1090 1095
 Val Gln Thr Leu Asp Glu Lys Asp Asn Pro Val Asp Ile Phe Glu
 1100 1105 1110
 Gly Leu Ala Ser Lys Arg
 1115

<210> 3
 <211> 313
 <212> PRT
 <213> Thermus aquaticus

<400> 3

Met Leu Glu Ser Lys Leu Lys Ala Pro Val Phe Thr Ala Thr Thr Gln
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 Gly Asp His Tyr Gly Glu Phe Val Leu Glu Pro Leu Glu Arg Gly Phe
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 Gly Val Thr Leu Gly Asn Pro Leu Arg Arg Ile Leu Leu Ser Ser Ile
 35 40 45
 Pro Gly Thr Ala Val Thr Ser Val Tyr Ile Glu Asp Val Leu His Glu
 50 55 60
 Phe Ser Thr Ile Pro Gly Val Lys Glu Asp Val Val Glu Ile Ile Leu
 65 70 75 80
 Asn Leu Lys Glu Leu Val Val Arg Phe Leu Asp Pro Arg Trp Arg Thr
 85 90 95
 Thr Leu Ile Leu Arg Ala Glu Gly Pro Lys Glu Val Arg Ala Val Asp
 100 105 110
 Phe Thr Pro Ser Ala Asp Val Glu Ile Met Asn Pro Asp Leu His Ile
 115 120 125
 Ala Thr Leu Glu Glu Gly Gly Lys Leu Tyr Met Glu Val Arg Val Asp
 130 135 140
 Arg Gly Val Gly Tyr Val Pro Ala Glu Arg His Gly Ile Lys Asp Arg
 145 150 155 160
 Ile Asn Ala Ile Pro Val Asp Ala Ile Phe Ser Pro Val Arg Arg Val
 165 170 175
 Ala Phe Gln Val Glu Asp Thr Arg Leu Gly Gln Arg Thr Asp Leu Asp
 180 185 190
 Lys Leu Thr Leu Arg Ile Trp Thr Asp Gly Ser Val Thr Pro Leu Glu
 195 200 205
 Ala Leu Asn Gln Ala Val Ala Ile Leu Lys Glu His Leu Asn Tyr Phe
 210 215 220
 Ala Asn Pro Glu Ala Ser Leu Leu Pro Thr Pro Glu Val Ser Lys Gly
 225 230 235 240
 Glu Lys Arg Glu Ser Ala Glu Glu Asp Leu Asp Leu Pro Leu Glu Glu
 245 250 255
 Leu Gly Leu Ser Thr Arg Val Leu His Ser Leu Lys Glu Glu Gly Ile
 260 265 270
 Glu Ser Val Arg Ala Leu Leu Ala Leu Asn Leu Lys Asp Leu Arg Asn
 275 280 285
 Ile Pro Gly Ile Gly Glu Arg Ser Leu Glu Glu Ile Arg Gln Ala Leu
 290 295 300
 Ala Lys Lys Gly Phe Thr Leu Lys Glu
 305 310

<210> 4
 <211> 99

<212> PRT

<213> Thermus aquaticus

<400> 4

Met Ala Glu Pro Gly Ile Asp Lys Leu Phe Gly Met Val Asp Ser Lys
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Tyr Arg Leu Thr Val Val Val Ala Lys Arg Ala Gln Gln Leu Leu Arg
 20 25 30

His Arg Phe Lys Asn Thr Val Leu Glu Pro Glu Glu Arg Pro Lys Met
 35 40 45

Arg Thr Leu Glu Gly Leu Tyr Asp Asp Pro Asn Ala Val Thr Trp Ala
 50 55 60

Met Lys Glu Leu Leu Thr Gly Arg Leu Phe Phe Gly Glu Asn Leu Val
 65 70 75 80

Pro Glu Asp Arg Leu Gln Lys Glu Met Glu Arg Leu Tyr Pro Thr Glu
 85 90 95

Glu Glu Ala